

# PATENT ABSTRACTS OF JAPAN

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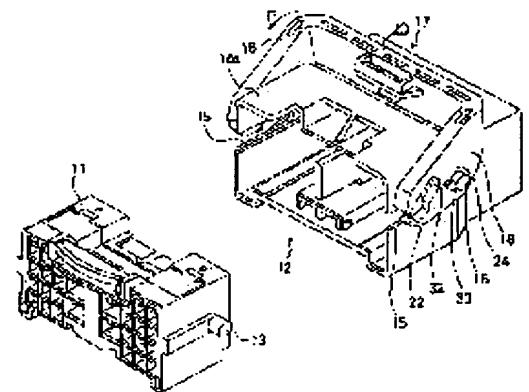
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(22)Date of filing : 04.10.1993 (72)Inventor : KATSUMA TAKATOSHI

#### (54) LEVER TYPE CONNECTOR

(57) Abstract:

**PURPOSE:** To prevent a lever from being removed from a connector housing in a simple structure.

**CONSTITUTION:** A protrusion 30 protruding in the radial direction and serving as a through stop part is provided on the front end part of a lever supporting shaft 16, and the movement of the surface of an arm part 18 to the outside in the axial direction is regulated by the inner circumferential surface of the shaft. A notched groove 32 is provided on the bearing hole 24 of the arm part 18 in the axial direction, and the protrusion 30 is passed when the arm part 18 is mounted on the lever supporting shaft 16. Since the protrusion 30 of the lever supporting shaft 16 is engaged with the engagement surface around the bearing hole 24 of the arm part 18, the arm part 18 is not removed from the lever supporting shaft 16 even when a force for pressing and widening the arm part 18 to both sides is applied as a result of deflection and deformation of the operation part 20 of a lever 17.



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**CLAIMS**

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**[Claim(s)]**

[Claim 1] The cam receptacle section which engages with the cam section formed in connector housing of another side at this lever while preparing the U-shaped lever in it rotatable, as this connector housing was straddled in one connector housing of the connectors each other combined is prepared. In the lever type connector to which carry out the variation rate of said cam receptacle section, and association and balking of both connectors are made to perform by carrying out both-way rotation of said lever. The lever support shaft which protruded on either of one [ said ] connector housing and said lever, It has the bearing pore to which it is formed in another side and fitting of said lever support shaft is carried out. The omission stop section which projects in the direction of a path is formed in either said lever support shaft or a bearing pore. The lever type connector characterized by said thing [ having escaped, and having engaged with the stop section, and the part having cut and lacked in the direction of a path, and having established said engagement side which falls out and enables insertion balking of the stop section in the balking location of said lever ] during both-way rotation of said lever on another side.

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the lever supporting structure of a lever type connector which was made to combine the connector by the leverage of a lever.

[0002]

[Description of the Prior Art] A lever type connector has the advantage that association and balking can be performed by the small force, and is applied to especially the multiple connector of 20 or more poles. The configuration which the fundamental principle is a thing using the leverage of a lever, for example, was shown in drawing 7 is known. The male connector housing 2 equipped with hood 2a which the female connector housing 1 which contained the female terminal of a large number which are not illustrated on the left-hand side of this drawing is shown, and contains the male terminal which is not illustrated in right-hand side, and receives the above-mentioned female connector housing 1 is shown. The slit 4 which receives the above-mentioned cam receptacle pin 3 is formed in the right-and-left both-sides wall of hood 2a of the male connector housing 2 to the cam receptacle pin 3 protruding on the right-and-left both-sides wall of the female connector housing 1.

[0003] moreover, the lever 5 which makes horseshoe-shaped in the male connector housing 2 -- rotatable -- mounting \*\*\*\*\*. The mounting structure is the configuration of having made lever support shaft 2b inserting in bearing hole 5a of a lever 5 as respectively circular bearing hole 5a is formed in the right-and-left both-sides section of a lever 5 while protruding lever support shaft 2b on right-and-left both the walls of the male connector housing 2, and shown in this drawing.

[0004] Moreover, the cam groove 6 which engages with said cam receptacle pin 3 is formed in the rear face of a lever 5. If a lever 5 is open for free passage with a slit 4 in the location shown in drawing 7 , and this cam groove 6 inserts the female connector housing 1 into hood 2a of the male connector housing 2 and rotates a lever 5 in the direction of the said drawing arrow head, the cam receptacle pin 3, as a result the female connector housing 1 will advance deeply into hood 2a by the cam groove 6 of a lever 5, and association of both connectors will complete it.

[0005] By the way, in the process in which rotate a lever 5 and the female connector housing 1 is made to advance into hood 2a, it originates in fitting of the sex terminals which are not illustrated etc., and an insertion load joins actuation of a lever 5. This insertion load increases as the revolution of a lever progresses. By the increment in the operating physical force which pushes control unit 5b of a lever 5 against the increment in this insertion load, control unit 5b of a lever 5 will bend in a concave, and arm 5c of a lever 5 will be extended on both sides in connection with this. Then, a possibility that arm 5c may separate from lever support shaft 2b arises. The technique of forming the guide wall 7 of a left Uichi pair in the lever 5 bottom of the male connector housing 2, and preventing the extension to the right-and-left both sides at the time of rotation of arm 5c as a cure to such inconvenience is known.

[0006]

[Problem(s) to be Solved by the Invention] However, as for the cure which establishes the guide wall 7, only the width of face of the guide wall 7 had the problem that the width of face of the male connector housing 2 will cause enlargement of breadth and the whole connector housing. Moreover, there is nothing without also considering the technique of escaping at the head of lever support shaft 2b, and attaching the washer for stops, but while inviting the increment in components mark, lowering of assembly-operation nature is caused. This invention aims at offer of the lever type connector which prevents suitably that a lever shifts from connector housing with an easy configuration.

[0007]

[Means for Solving the Problem] This invention made in order to solve the above-mentioned technical problem The cam receptacle section which engages with the cam section formed in connector housing of another side at this lever while preparing the U-shaped lever in it rotatable, as this connector housing was straddled in one connector housing of the connectors each other combined is prepared. In the lever type connector to which carry out the variation rate of said cam receptacle section, and association and balking of both connectors are made to perform by carrying out both-way rotation of said lever The lever support shaft which protruded on either of one [ said ] connector housing and said lever, It has the bearing pore to which it is formed in another side and fitting of said lever support shaft is carried out. The omission stop section which projects in the direction of a path is formed in either said lever support shaft or a bearing pore. It is characterized by said thing [ having escaped, and having engaged with the stop section, and the part having cut and lacked in the direction of a path, and having established said engagement side which falls out and enables insertion balking of the stop section in the balking location of said lever ] during both-way rotation of said lever on another side.

[0008]

[Function] According to the above-mentioned configuration, when attaching a lever in connector housing, a lever is positioned in the balking location of both connectors, and it inserts from the part which the engagement side which was formed in either the lever support shaft or the bearing pore, and which fell out and prepared the stop section in another side cut, and was lacked. And in order to combine both connectors, in operating a lever, a lever is turned to a joint location from a balking location, and it rotates. Then, it prevents that a lever bends in response to the operating physical force over the insertion load which acts on a lever with association of both connectors, escape and the stop section engages with an engagement side even if the applied force of the sense which makes a lever support shaft and a bearing pore desert works, and a lever support shaft and a bearing pore break away.

[0009]

[Effect of the Invention] It can prevent that a lever separates from connector housing according to the operating physical force which resists an insertion load and is applied to a lever, maintaining the mechanical strength of a lever without enlarging a connector or increasing components mark and activity manday according to this invention, as mentioned above.

[0010]

[Example] Next, the example which materialized this invention is explained with reference to a drawing. The female connector housing 11 with which the female terminal which is not illustrated on the left-hand side of <first example> drawing 1 is contained is shown, and while the male terminal which is not illustrated is contained by right-hand side, the male connector housing 12 equipped with hood 12a is shown. The above-mentioned female connector housing 11 has magnitude which can be inserted into hood 12a of the male connector housing 12, and the cam receptacle pin 13 of the couple which is equivalent to the cam receptacle section at the right-and-left both-sides section protrudes sideways (only one side is illustrated). On the other hand, the male connector housing 12 is making the core box in which the front face carried out opening, the guide slot 15 on the couple is formed in the right-and-left both-sides section, and the cam receptacle pin 13 can advance now into the guide slot 15 at the time of insertion of the female connector housing 11. As shown in the right-and-left both-sides section of the male connector housing 12 at drawing 1 and drawing 2, the lever support shaft 16 (only one side is illustrated) of a couple protrudes sideways, and the lever 17 is attached here by the supporting structure mentioned later.

[0011] This lever 17 is attached in the male connector housing 12 by nothing and both the arm section 18 in the condition over the right-and-left both-sides wall of the male connector housing 12 in horseshoe-shaped [ which connected the end of the arm section 18 of a left Uichi pair by the control unit 20 ]. The cam groove 22 equivalent to the cam section is cut in the background (male connector housing 12 side) of both the arm section 18, and the cam receptacle pin 13 advances into the interior at the time of insertion of the female connector housing 11. This cam groove 22 is in the condition into which a cam receptacle pin 13 advanced, when a lever 17 rotates to the joint location (the location into which both connector housing gets each other thoroughly) which rotated in the direction of P view from the balking location shown in drawing 1, moves female connector housing 11 inside [ hood 12 a ] male-connector housing 12 according to a cam operation, and has the function of changing the terminal of a sex into a connection condition and combining both connectors.

[0012] next, when the supporting structure of a lever 17 is explained, said lever support shaft 16 and the bearing hole 24 which fits in are formed in both the arm section 18 of the above-mentioned lever 17, and the part is shown in drawing 3 -- as -- the direction of a path -- and it cuts in accordance with shaft orientations,

and it lacks and has become the notching slot 32. On the other hand, as the lever support shaft 16 is shown in drawing 2, the projection 30 which can be inserted in nothing and a point to said notching slot 32 projects the shape of a cylinder which protruded on the male connector housing 12 in the direction of a path. However, the die length of the lever support shaft 16 is setting out in which projection 30 projects on the outside of a lever 17. Moreover, it is positioned so that it may fit in each other, when it is in the balking location of both the connectors that a lever 17 indicates to be the notching slot 32 and the above-mentioned projection 30 to drawing 1. The surrounding lateral surface of the bearing hole 24 of the arm section 18 forms the engagement side 34 which engages with inner skin 30a of the above-mentioned projection 30. [0013] It is performed as follows in order to insert the lever 17 of the above-mentioned configuration in the lever support shaft 16. First, a lever 17 is made to counter the male connector housing 12 according to the position of the balking location of both the connectors shown in drawing 1. And making both the arm section 18 extend, the notching slot 32 is fitted with projection 30, and the lever support shaft 16 is made to insert into the bearing hole 24. Then, projection 30 projects through the notching slot 32 in the engagement side 34 side which is lateral surface of the arm section 18. Next, in order to combine both connectors, it lets the guide slot 15 of the male connector housing 12 pass, and the cam receptacle pin 13 of the female connector housing 11 is inserted in the cam groove 22 of the lever 17 in the balking location shown in drawing 1. And it is made to rotate in the direction of P view from the balking location which shows the lever 17 inserted in as mentioned above to drawing 1 to a joint location. Then, the cam receptacle pin 13 is guided at a cam groove 22, and sex both connectors combine it. At this time, if an insertion load increases with insertion to the male connector of a female connector and the operating physical force which resists this and is applied to a control unit 20 increases, the control unit 20 of a lever 17 will bend and deform, and the force which extends the arm section 18 on both sides acts. However, since the projection 30 of the lever support shaft 16 and the circumference engagement side 34 of the bearing hole 24 of the arm section 18 are being engaged, even if the arm section 18 can extend, the arm section 18 does not secede from the lever support shaft 16.

[0014] Since it is not necessary to establish a guide wall like before for a start [ this ] according to the example as explained above, enlargement of a connector is canceled. Moreover, since balking prevention of a lever 17 can be attained without also making components mark and the number of erectors increase, it excels also from the field of an activity with a manufacturing cost and a group.

[0015] The <second example>, next the second example are explained. In the second example, since the stop structure of a lever support shaft and a bearing hole differs from the first example, only a different part is explained and other parts omit explanation. As shown in drawing 4, the lever 17 is supported by fitting of the lever support shaft 40 and the bearing hole 42 rotatable. That is, as the center section of the lever support shaft 40 is shown in drawing 5, it is scooped out along with the perimeter and the narrow diameter portion 46 is formed. By this, it will escape from the lever support shaft 40 with a base 43 across a narrow diameter portion 46, and the stop section 48 will be allotted. And it escapes and the notching slot 50 is formed in the direction of a path at the stop section 48. The depth of this notching slot 50 is prepared to the outer diameter and flush of a narrow diameter portion 46. The projection 52 of the bearing hole 42 mentioned later passes, and projection 52 rotates this notching slot 50 along the perimeter of a narrow diameter portion 46 at the time of rotation of a lever 17. Therefore, it escapes and the inner skin of the stop section 48 turns into the engagement side 44 which performs the omission stop of a lever 17.

[0016] On the other hand, as shown in drawing 6, the projection 52 which projects towards an axial center is formed in inner skin 42a of the bearing hole 42. While the outside end face of this projection 52 is formed flat-tapped with the front face of the arm section 18 and that width of face is slightly set up small from the width of face of the narrow diameter portion 46 of the above-mentioned lever support shaft 40, as for that projection dimension, the projection 52 is movable in accordance with the peripheral surface of a narrow diameter portion 46. In addition, the location of this projection 52 is set as the location which can pass through the notching slot 50 of the above-mentioned omission stop section 48 in the balking location of a lever 17.

[0017] In the second example constituted as mentioned above, even if it is going to deform into the sense from which a control unit 20 bends and the arm section 18 separates outside from the lever support shaft 40 according to the operating physical force applied to a control unit 20, since the projection 52 of the bearing hole 42 is having migration on the shaft-orientations outside regulated by the engagement side 44 of the lever support shaft 40, the arm section 18 does not separate from an arm 18 from the lever support shaft 40. Therefore, the same omission stop effectiveness as the first example is done so also in the second example.

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[Translation done.]

## \* NOTICES \*

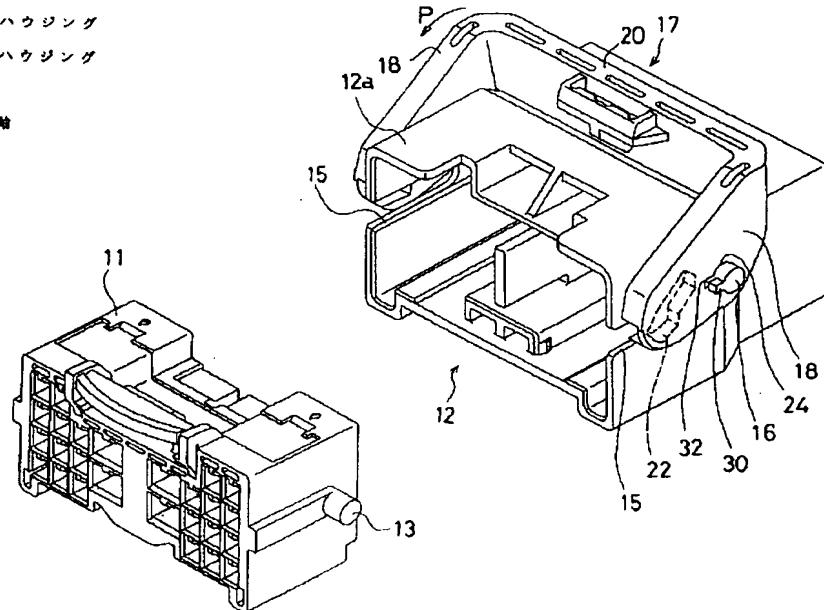
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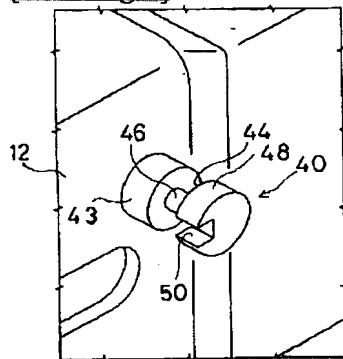
## DRAWINGS

## [Drawing 1]

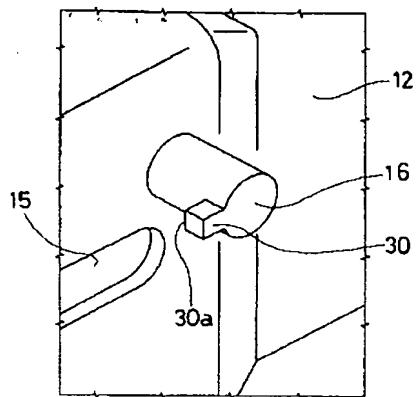
1 1 … 雌コネクタハウジング  
1 2 … 雄コネクタハウジング  
1 7 … レバー  
1 6 … レバー支持軸  
1 8 … アーム部  
2 4 … 軸受孔  
3 0 … 突起  
3 2 … 切り欠き部



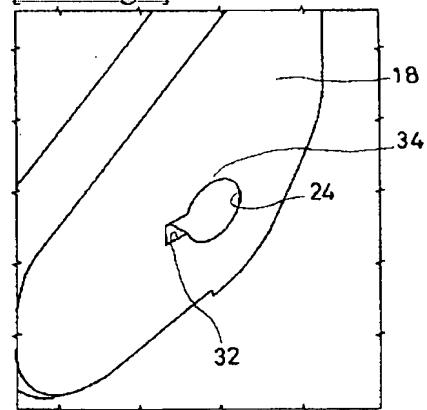
## [Drawing 5]



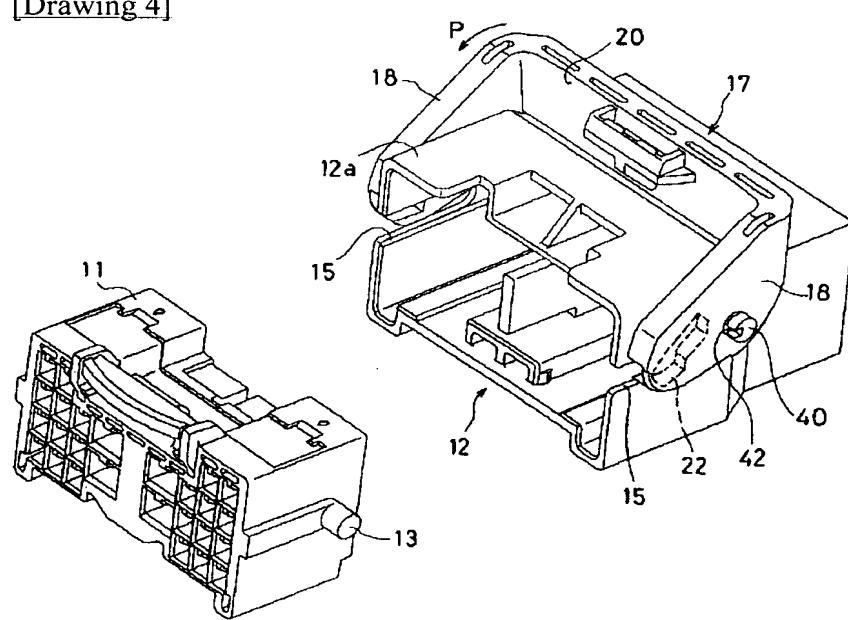
## [Drawing 2]



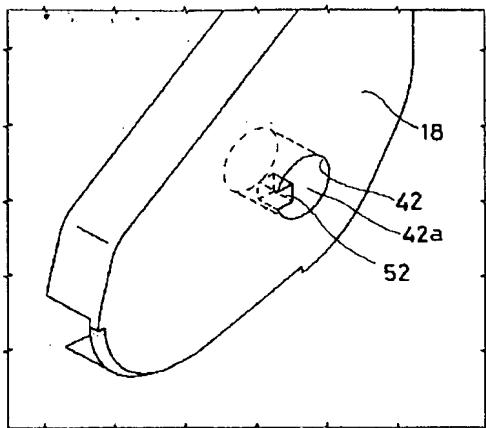
[Drawing 3]



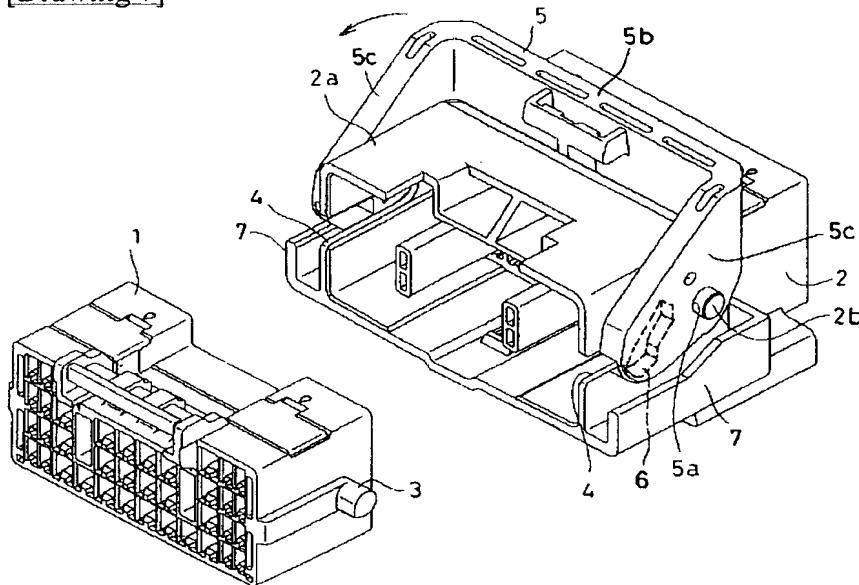
[Drawing 4]



[Drawing 6]



[Drawing 7]



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[Translation done.]

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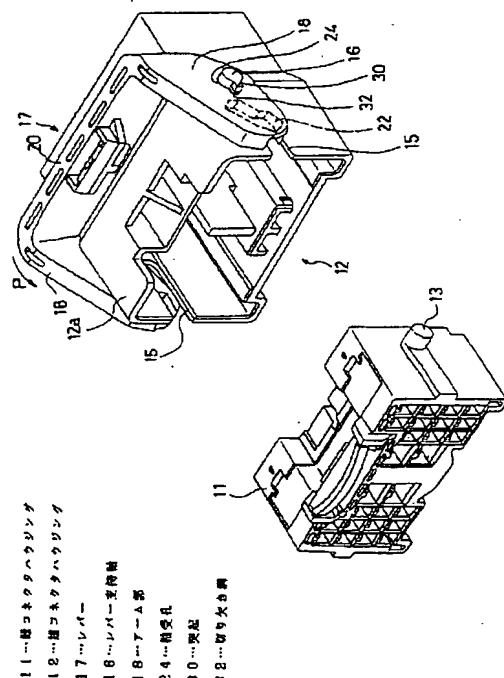
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(54) 【発明の名称】 レバー式コネクタ

(57) 【要約】

【目的】 簡単な構成でレバーがコネクタハウジングから外れるのを防止する。

【構成】 レバー支持軸16は先端部に抜け止め部としての径方向に突出する突起30が設けられており、その内周面はアーム部18の表面の軸方向外側への動きを規制する。アーム部18の軸受孔24には切り欠き溝32が軸方向に沿って設けられており、アーム部18をレバー支持軸16に取り付けるときに突起30が通過するものである。レバー17の操作部20が撓み変形して、アーム部18を両側に押し広げる力が作用しても、レバー支持軸16の突起30とアーム部18の軸受孔24周りの係合面34とが係合しているのでアーム部18がレバー支持軸16から離脱することはない。



## 【特許請求の範囲】

【請求項1】互いに結合されるコネクタのうちの一方のコネクタハウジングに、同コネクタハウジングを跨ぐようにしてコ字状のレバーを回動可能に設けると共に他方のコネクタハウジングにこのレバーに形成されたカム部に係合するカム受け部を設け、前記レバーを往復回動させることにより前記カム受け部を変位させて両コネクタの結合及び離脱を行なわせるレバー式コネクタにおいて、

前記一方のコネクタハウジングと前記レバーとのいずれか一方に突設したレバー支持軸と、他方に形成され前記レバー支持軸が嵌合される軸受孔部と、を有し、前記レバー支持軸もしくは軸受孔部のいずれか一方に径方向に突出する抜け止め部を形成し、他方に、前記レバーの往復回動の間前記抜け止め部と係合しかつその一部が径方向に切り欠かれて前記抜け止め部を前記レバーの離脱位置で挿入離脱可能とする係合面を設けたことを特徴とするレバー式コネクタ。

## 【発明の詳細な説明】

## 【0001】

【産業上の利用分野】本発明は、レバーのてこ作用によってコネクタの結合を行なわせるようにしたレバー式コネクタのレバー支持構造に関する。

## 【0002】

【従来の技術】レバー式コネクタは、小さな力で結合、離脱を行えるという利点があり、特に20極以上の多極コネクタに適用されている。その基本的な原理はレバーのてこ作用を利用したもので、例えば図7に示した構成が知られている。同図の左側には図示しない多数の雌ターミナルを収納した雌コネクタハウジング1が示され、右側には図示しない雄ターミナルを収納しかつ上記雌コネクタハウジング1を受け入れるフード部2aを備えた雄コネクタハウジング2が示されている。雌コネクタハウジング1の左右両側壁部にはカム受けピン3が突設されるのに対し、雄コネクタハウジング2のフード部2aの左右両側壁には上記カム受けピン3を受け入れるスリット4が形成されている。

【0003】また、雄コネクタハウジング2にはコ字型をなすレバー5が回動可能に取付られている。その取付構造は、雄コネクタハウジング2の左右両壁部にレバー支持軸2bを突設すると共にレバー5の左右両側部にそれぞれ円形の軸受孔5aを形成し、同図に示すようにレバー5の軸受孔5aにレバー支持軸2bを挿通させた構成である。

【0004】また、レバー5の裏面には前記カム受けピン3と係合するカム溝6が形成されている。このカム溝6は、レバー5が図7に示す位置においてスリット4と連通し、雌コネクタハウジング1を雄コネクタハウジング2のフード部2a内に挿入し、レバー5を同図矢印方向に回動させると、レバー5のカム溝6にてカム受けビ

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ン3ひいては雌コネクタハウジング1がフード部2a内に深く進入して両コネクタの結合が完了する。

【0005】ところで、レバー5を回動させて雌コネクタハウジング1をフード部2a内に進入させる過程で、図示しない雌雄ターミナル同士の嵌合等に起因して、レバー5の操作には挿入荷重が加わる。この挿入荷重はレバーの回転が進むにしたがって増加する。この挿入荷重の増加に対抗してレバー5の操作部5bを押す操作力の増加により、レバー5の操作部5bが凹状に撓み、これに伴ってレバー5のアーム5cが両側に拡開してしまう。すると、アーム5cがレバー支持軸2bから外れる恐れが生じる。このような不都合に対する対策として、例えば雄コネクタハウジング2のレバー5の下側に左右一対のガイド壁7を設けてアーム5cの回動時の左右両側への拡開を防止する技術が知られている。

## 【0006】

【発明が解決しようとする課題】しかし、ガイド壁7を設ける対策は、ガイド壁7の幅だけ雄コネクタハウジング2の幅が広がり、コネクタハウジング全体の大型化を招いてしまうという問題があった。また、レバー支持軸2bの先端に抜け止め用のワッシャを取り付ける技術も考えられないではないが、部品点数の増加を招致すると共に、組立作業性の低下を招く。本発明は、簡単な構成でレバーがコネクタハウジングからはずれるのを好適に防止するレバー式コネクタの提供を目的とする。

## 【0007】

【課題を解決するための手段】上記課題を解決するためになされた本発明は、互いに結合されるコネクタのうちの一方のコネクタハウジングに、同コネクタハウジングを跨ぐようにしてコ字状のレバーを回動可能に設けると共に他方のコネクタハウジングにこのレバーに形成されたカム部に係合するカム受け部を設け、前記レバーを往復回動させることにより前記カム受け部を変位させて両コネクタの結合及び離脱を行なわせるレバー式コネクタにおいて、前記一方のコネクタハウジングと前記レバーとのいずれか一方に突設したレバー支持軸と、他方に形成され前記レバー支持軸が嵌合される軸受孔部と、を有し、前記レバー支持軸もしくは軸受孔部のいずれか一方に径方向に突出する抜け止め部を形成し、他方に、前記レバーの往復回動の間前記抜け止め部と係合しかつその一部が径方向に切り欠かれて前記抜け止め部を前記レバーの離脱位置で挿入離脱可能とする係合面を設けたことを特徴とする。

## 【0008】

【作用】上記構成によれば、レバーをコネクタハウジングに取付けるときは、レバーを両コネクタの離脱位置に位置決めし、レバー支持軸もしくは軸受孔部のいずれか一方に形成された抜け止め部を、他方に設けた係合面の切り欠かれた部分から挿入する。そして両コネクタを結合させるためにレバーを操作する場合には、レバーを離

脱位置から結合位置に向けて回動する。すると、両コネクタの結合に伴ってレバーに作用する挿入荷重に対する操作力を受けてレバーが撓み、レバー支持軸と軸受孔部とを離反させる向きの作用力が働いても、抜け止め部が係合面と係合してレバー支持軸と軸受孔部とが離脱するのを防止する。

【0009】

【発明の効果】上述のように本発明によれば、コネクタを大型化したり、部品点数や作業工数を増やすこと無く、レバーの機械的強度を保ちながら、挿入荷重に抗してレバーに加える操作力によりレバーがコネクタハウジングから外れるのを防止できる。

【0010】

【実施例】次に本発明を具体化した実施例を図面を参照して説明する。

＜第一実施例＞図1の左側には図示しない雌ターミナルが収納される雌コネクタハウジング11が示され、右側には図示しない雄ターミナルが収納されると共に、フード部12aを備えた雄コネクタハウジング12が示されている。上記雌コネクタハウジング11は雄コネクタハウジング12のフード部12a内に挿入可能な大きさになっており、その左右両側部にはカム受け部に相当する一対のカム受けピン13が横向きに突設されている（一方のみ図示）。一方、雄コネクタハウジング12は前面が開口した箱型をなしており、その左右両側部には一対のガイド溝15が形成され、雌コネクタハウジング11の挿入時にカム受けピン13がそのガイド溝15内に進入できるようになっている。雄コネクタハウジング12の左右両側部には図1、図2に示すように、一対のレバー支持軸16（一方のみ図示）が横向きに突設され、ここには後述する支持構造によってレバー17が取付けられている。

【0011】このレバー17は、左右一対のアーム部18の一端を操作部20にて連結したコ字型をなし、両アーム部18にて雄コネクタハウジング12の左右両側壁部を跨いた状態で雄コネクタハウジング12に取り付けられている。両アーム部18の裏側（雄コネクタハウジング12側）には、カム部に相当するカム溝22が凹設され、雌コネクタハウジング11の挿入時にカム受けピン13がその内部に進入する。このカム溝22は、カム受けピン13が進入した状態で、レバー17が図1に示す離脱位置からP矢視方向に回転した結合位置（両コネクタハウジングが完全に嵌り合う位置）まで回動されると、雌コネクタハウジング11をカム作用によって雄コネクタハウジング12のフード部12a内側に移動させ、雌雄のターミナルを接続状態にして両コネクタの結合を行わせる機能を有する。

【0012】次にレバー17の支持構造を説明すると、上記レバー17の両アーム部18には前記レバー支持軸16と嵌合する軸受孔24が形成されており、その一部

は図3に示すように、径方向へかつ軸方向に沿って切り欠かれて切り欠き溝32となっている。一方、レバー支持軸16は、図2に示すように、雄コネクタハウジング12に突設された円柱状をなし、先端部には前記切り欠き溝32へ挿通可能な突起30が径方向へ突出している。但し、レバー支持軸16の長さは、突起30がレバー17の外側に突出するような設定になっている。また、切り欠き溝32と上記突起30とは、レバー17が図1に示す両コネクタの離脱位置にあるときに嵌り合うよう位置決めされている。アーム部18の軸受孔24の周りの外側面は上記突起30の内周面30aと係合する係合面34を形成している。

【0013】上記構成のレバー17をレバー支持軸16に嵌め込むには、次のようにする。まず、レバー17を図1に示す両コネクタの離脱位置の姿勢に合わせて雄コネクタハウジング12に対向させる。そして、両アーム部18を拡開させながら、切り欠き溝32を突起30と適合させてレバー支持軸16を軸受孔24内に挿入させる。すると、突起30が切り欠き溝32を通してアーム部18の外側面である係合面34側に突出する。次に、両コネクタを結合するには、雌コネクタハウジング11のカム受けピン13を雄コネクタハウジング12のガイド溝15を通して、図1に示す離脱位置にあるレバー17のカム溝22にはめ込む。そして、上記のように嵌め込まれたレバー17を、図1に示す離脱位置から、P矢視方向に結合位置まで回転させる。すると、カム受けピン13はカム溝22に案内されて、雌雄両コネクタが結合する。このとき、雌コネクタの雄コネクタへの挿入に伴って挿入荷重が増加し、これに抗して操作部20に加える操作力が増加するとレバー17の操作部20が撓み変形して、アーム部18を両側に押し広げる力が作用する。しかし、レバー支持軸16の突起30とアーム部18の軸受孔24周り係合面34とが係合しているので、アーム部18が押し広げられても、アーム部18がレバー支持軸16から離脱することはない。

【0014】以上説明したように、本第一実施例によれば、従来のようなガイド壁を設けなくてもよいため、コネクタの大型化が解消される。また、レバー17の離脱防止を、部品点数や組立工数も増加させることなく達成できるため、製造コスト、組付作業の面からも優れる。

【0015】<第二実施例>次に、第二実施例について説明する。第二実施例では、レバー支持軸と軸受孔の係止構造が第一実施例とは異なるので、異なる部分のみ説明し、他の部分は説明を省略する。図4に示すように、レバー17はレバー支持軸40と軸受孔42との嵌合により回動可能に支持されている。すなわち、レバー支持軸40の中央部は、図5に示すように、全周に沿って抉り取られ、小径部46が形成されている。これにより、レバー支持軸40は小径部46を挟んで基部43と抜け止め部48が配されることになる。そして、抜け止め部

48には径方向に切り欠き溝50が設けられている。この切り欠き溝50の深さは小径部46の外径と面一まで設けられている。この切り欠き溝50は後述する軸受孔42の突起52が通過するものであり、レバー17の回動時、突起52は小径部46の周囲に沿って回動するものである。したがって、抜け止め部48の内周面がレバー17の抜け止めを行なう係合面44となる。

【0016】一方、図6に示すように、軸受孔42の内周面42aには軸心へ向けて突出する突起52が形成されている。この突起52の外側端面はアーム部18の表面と面一に形成されており、また、その幅は上記レバー支持軸40の小径部46の幅より僅かに小さく設定されるとともに、その突出寸法は突起52が、小径部46の周囲に沿って移動可能になっている。なお、この突起52の位置は、レバー17の離脱位置で上記抜け止め部48の切り欠き溝50を通過可能な位置に設定されている。

【0017】上記のように構成された第二実施例においても、操作部20に加える操作力によって操作部20が撓み、アーム部18がレバー支持軸40から外側に外れる向きに変形しようとしても、アーム部18は軸受孔42の突起52がレバー支持軸40の係合面44により軸向外側への移動を規制されているので、アーム部18がレバー支持軸40から外れることはない。したがって、第二実施例でも第一実施例と同様な抜け止め効果を奏する。

## ＊【図面の簡単な説明】

【図1】第一実施例のレバー式コネクタの離脱状態の斜視図

【図2】第一実施例のレバー支持軸の拡大斜視図

【図3】第一実施例の軸受孔の拡大斜視図

【図4】第二実施例のレバー式コネクタの離脱状態の斜視図

【図5】第二実施例のレバー支持軸の拡大斜視図

【図6】第二実施例の軸受孔の拡大斜視図

【図7】従来技術を示す斜視図

## 【符号の説明】

11…雌コネクタハウジング

12…雄コネクタハウジング

17…レバー

16…レバー支持軸

18…アーム部

24…軸受孔

30…突起

32…切り欠き溝

34…係合面

42…軸受孔

44…係合面

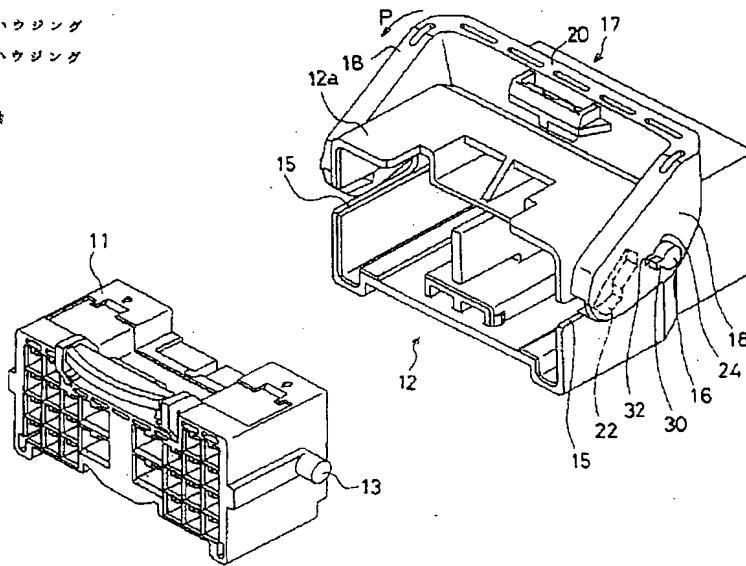
48…抜け止め部

50…切り欠き溝

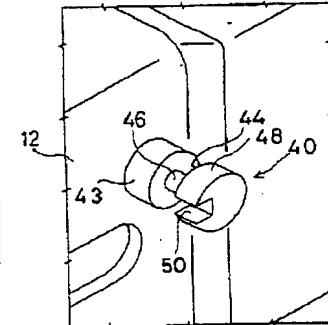
52…突起

\*

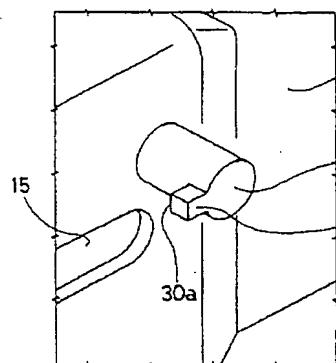
【図1】



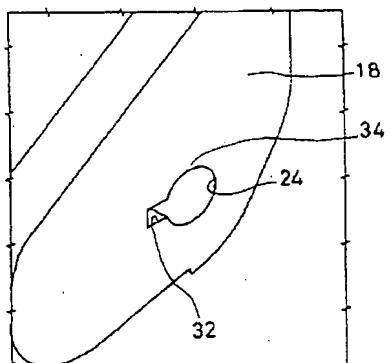
【図5】



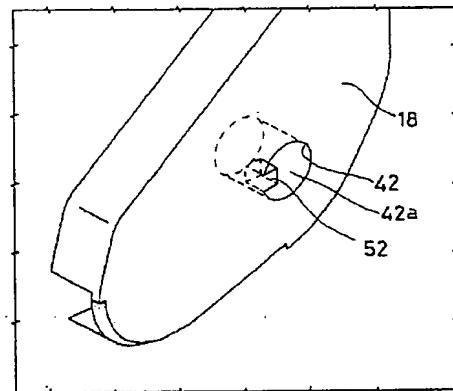
【図2】



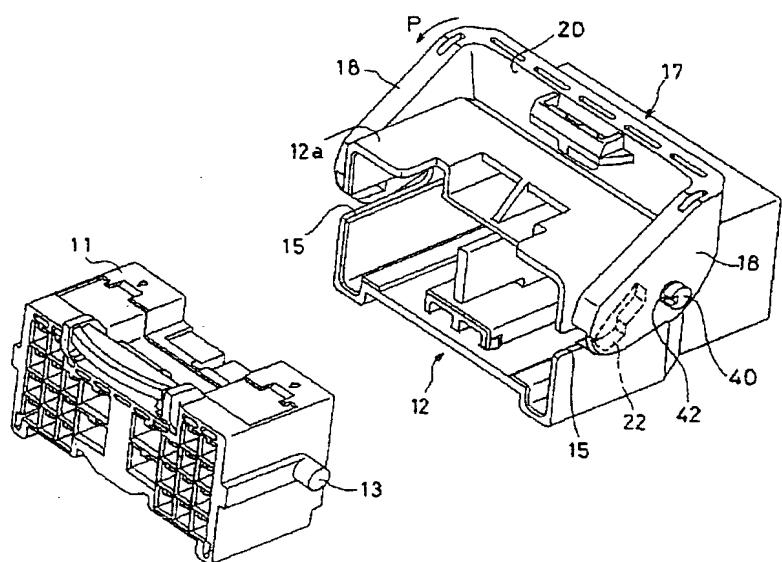
【図3】



【図6】



【図4】



【図7】

